Running head: Initial Damage Assessment Planning

Formulating A Damage Assessment Plan

For Kingsport

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December 2008

Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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Abstract

The research project was performed to help the Kingsport Fire Department determine its ability to prioritize disaster response and formulating a systematic method of initial damage assessment. By not having an initial damage assessment plan, responders are not able to prioritize mitigation efforts. A quality assessment plan is made up of various elements. How do the elements of Kingsport's current plan measure up to other plans? Does the local plan function with the state and federal plans? Plans from other agencies were evaluated for type, levels and participation. Different agencies and disciplines were contacted to participate in a questionnaire. Various states were evaluated for vital elements to a quality damage assessment plan. Initial damage assessment plans vary greatly, but some essential elements are reported in quality plans. This research project was performed in an action format. A plan was developed for Kingsport and will be implemented. The plan was developed to function with local, state and federal response plans. Recommendations include implementation and training sessions of the plan, along with detailed predisaster planning and community assessment.

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Introduction

The Kingsport Fire Department takes the approach of an all hazard response to emergency incidents. Most of the incidents are mitigated by a single unit or isolated to a single address. Upon occasion incidents escalate to the level that damage assessment must be performed to prioritize emergency response to an incident that could not be handled easily, quickly or with resources immediately available. The use of a systematic initial damage assessment plan could keep incidents manageable, organized and mitigated in an efficient manner.

The problem that has arisen in the Kingsport Fire Department does not have a disaster damage assessment plan for initial responding field units. By not having a plan, responders are not able to prioritize mitigation efforts. The purpose of this research is to evaluate the department's ability to prioritize disaster response, and to formulate a systematic method of initial damage assessment. When looking at the problem in its current form, the author believes that an in-depth research project would best be served if it was done under the action format. Other methods could be used for further research; this particular project will use the action method of research. I will gather information along with current disaster damage assessment plans, to evaluate the information pertaining to those plans. The development of a plan which best suits the needs of Kingsport and implementation of that plan. The following research questions are to be addressed:

1. What is the department's ability to prioritize disaster response?

2. What are the damage assessment plan elements for the Kingsport Fire Department?
3. What plan best fits the needs of the Kingsport Fire Department?
4. What are the elements that make up a quality damage assessment plan?

Background

The City of Kingsport is located in the northeast corner of the state of Tennessee. Kingsport is located within Sullivan County and is approximately 47 square miles in size. The population is 44,905, as recorded by the United States Census Bureau in 2000 (United States Census Bureau, 2001).

The city is primarily residential consisting of single family and multi-family dwellings. Commercial, mercantile, and industry are all represented in adequate portions to assure the community will continue to thrive and grow. The city also has adequate means of transportation, with two major interstates, a north – south rail line, and a local airport.

The city operates under a counsel / manager form of government. The city's governing body consists of a mayor and six aldermen. The board of mayor and alderman are responsible for policies, appointing various boards, determining budget issues and appointing the city manager. The appointed city manager is in charge of the day-to-day operations of the city.

The Kingsport Fire Department (KFD) was established in 1917. The department currently has 103 uniformed and civilian employees. The department consists of only paid members. The breakdown of those employees is 4 in administration, 5 in prevention,

1 in training and 93 in suppression / emergency response. The department operates from six stations strategically located throughout the city. The Kingsport Fire Department provides various services for its citizens and visitors. Among these that fall under the emergency response umbrella are suppression, hazardous material, tactical rescue and medical first response. The department has seven frontline pumpers that function as Advanced Life Support (ALS) units. One pumper operates from each station with two operating from headquarters due to call volume.

The department maintains an all hazard philosophy to emergency response. The department is limited by the number of employees and apparatus. A callback of off duty personnel procedure has been instituted for large scale or disaster level incidents. With any callback system a period of delay before employees arrive back for assignment will take place. The assumption that callback personnel will be available or able to report to a predestinated rallying point or station, cannot be taken for grantee.

Currently Kingsport is in a very advantageous physical location. Natural disasters such as volcano, hurricanes, and tsunamis are not a threat to our citizens. Earthquakes are a possibility, but the city does not lie on a fault line. The New Madrid fault line does cross the western portion of the state of Tennessee. The fault is located over 400 miles from the Kingsport city limits. The threat of a tornado or wind incident emergency are true hazards for the city. The occurrence of an incident happening are (see Appendix A). One factor that helps eastern Tennessee is the proximity to the Appalachian Mountains. Those mountains provide some shielding from wind incidents traveling along the ground without resistance. The probability of flooding in particular flash flooding is a real problem for our area. The topography of the area is conducive for large amounts of

rainfall in a sudden and violent manner. The large quantity of water from a rain storm could cause creeks, rivers and lakes to swell beyond capacity. This excess of water has to flow somewhere. Numerous cities are located in the valleys, along creeks, rivers and lakes. Kingsport is dissected by the north and south forks of the Holston River. Kingsport is located in an area in which vegetation thrives, so wildland fires are a true possibility. With two major interstates and a primary railline passing through the city limits, transportation accidents involving hazardous materials does happen on a fairly regular occurrence. While some natural and manmade disasters are not realistic, many disasters can happen and do within the City of Kingsport.

The Kingsport Fire Department is nationally accreditated. A risk assessment plan was formulated during the development of this documentation. An analysis of the community's hazards and frequency of those hazards was formed and updated annually.

A damage assessment plan is in place for Sullivan County. That plan is to take place after the emergency phase of a disaster has occurred. The cities risk management director is to oversee a team that is made up of people from risk management, utilities, hazardous material specialist, engineers and county emergency management agency representatives. This team only does a damage assessment to help determine the level of destruction in the community. The emergency services of the city currently use the approach of stopping and rendering aid to the first emergency scene that the unit comes upon or to incidents that have been reported to the dispatch center. The use of prioritizing emergency incidents could help identify people that are in immediate need of help (Federal Emergency Management Agency, 2007a). Kingsport Fire Department currently does not have an initial damage assessment plan or format. By forming such a plan it will

allow the department to prioritize life threatening injuries that may occur during the first few critical moments of a disaster.

The reduction of or limiting injuries and deaths during a disaster situation is one of a fire departments responsibilities. This research is in line with the United States Fire Administration (USFA) operational objectives. A systematic initial damage assessment plan allows prioritizing critical emergency scenes to be performed safely and in a timely manner, reducing the number of civilian casualties and deaths. The problem of not having a plan may not become an issue until a disaster hits, at that point setting up a plan will be too late. This issue is in its infancy and needs to be addressed before it becomes an emerging issue and reduce citizens injures or deaths (Department of Homeland Security, 2008).

This research project has linkage to the Executive Analysis of Fire Service Operations in Emergency Management (EAFSOEM) class which is part of the Executive Fire Officer Program (EFO) and is provided at the National Fire Academy (NFA). The subject matter within the Executive Analysis of Fire Service Operations in Emergency Management class deals with planning and management of emergency incidents. With both of these aspects are addressed in this project. Research is directly on point, and is a vital portion for this project. The format of this paper is the (American Psychological Association) (APA) (5^{th} edition) style. The format is also the style to be used on all future Applied Research Projects (Department of Homeland Security, 2008).

Literature Review

A good place to start is to define what a disaster is? Webster's dictionary defines a disaster as "an event causing great loss, hardship or suffering too many people" (Librairie Larousse, 1993). A major disaster is also defined as any catastrophe regardless of cause in the United States, which determined by the President causes damage and magnitude to warrant assistance to supplement the efforts and resources of the local, state and relief organizations (Federal Emergency Management Agency, 2006). Another definition that needs to be clarified is that of damage assessment. There are various interpretations and terminology of what damage assessment means. One definition comes from the Executive Analysis of Fire Service Operations in Emergency Management (EAFSOEM) "gathering of information related to the impact of an event, or series of events on life and property within a defined area" (Federal Emergency Management Agency, 2007a). The federal government also defines it as the process used to appraise injuries and deaths, damage to public and private property, status to key facilities along with key services, resulting from manmade or natural disasters (Federal Emergency Management Agency, 2008). Another definition comes from National Fire Protection Association [NFPA] standard on disaster / emergency management and business continuity programs, damage assessment states "An appraisal or determination of the effects of the disaster on human, physical, economic, and natural resources" (National Fire Protection Association, 2007).

Damage assessment is a complex component of emergency response and longterm recovery. The EAFSOEM course teaches assessment is done in two phases, the

immediate and postincident (Federal Emergency Management Agency, 2007a). Two phases are also addressed in the City of Kingsport s Disaster Preparedness Plan. In the cities current plan, emergency services will provide the initial damage assessment. The information gathered in that assessment is forwarded on to command or and Emergency Operations Center [EOC] if activated (City of Kingsport , 2008). Within the cities plan, no formal documentation or systematic method of performing initial assessment is recommended. The initial phase is to be performed quickly and in conjunction with life and property saving measures. This information is used to prioritize rescue, life saving measures or hazard mitigation levels. The initial assessment must evaluate existing emergency needs, life safety to the public, potential hazards, damage to homes businesses roads infrastructure and municipal services, along with areas of unsafe conditions (Federal Emergency Management Agency, 2007a).

The second phase of the plan does incorporate a formal trained team of assessors to categorize the levels of damage in the disaster area. The team is made up of public safety, building officials, utilities, education, engineers, industry, fleet maintenance, public information officer, public works and risk management who leads the team (City of Kingsport , 2008).This team is to provide thorough damage assessment to private and public structures. This is performed after life safety measures have been restored. The second or postincident phase has no urgency to be completed only to be thorough. This information is to be used for historical recording claims, postincident analysis and disaster declaration if damage rises to the appropriate level. The information that is gathered from these assessments is to be compiled by the risk management director and forwarded on to the emergency operation center if activated or to the county emergency

management director. Forms are generated for each specific location that receives mesureable damage (Sullivan County Plan 2004). (see Appendix B) Initial damage assessment is the responsibility of the local government. If local agencies are unable to perform assessment due to the magnitude or the disaster may rise to the level that a presidential declaration is declared. The counties emergency management director holds the responsibility of gathering the documentation for such a declaration. Tennessee Emergency Management Agency [TEMA] will assist with the initial and postincident damage assessment (Tennessee Emergency Management Agency, 2007). The City of Kingsport resides within Sullivan County and under the counties emergency operations plan. A formal team will function in the same manner as the cities team. This team will be activated if the scale of the disaster overwhelms the cities team or reaches beyond the cities limits. The team will deploy postincident and is formulated with the same basis components as the cities team. The county emergency management director is designated as the team leader (Sullivan County Emergency Management Agency, 2004). One area that differs from the city and county plan is the use of the Emergency Support Function format, which is not incorporated in the city plan.

Many things can be accomplished prior to any disaster. A well evaluated community and prepared emergency service response plan will go a long way in managing a disaster. States such as Florida and California have a larger number of disasters than other states. Natural disasters are a seasonal occurrence, from wildland fires, tornados, and hurricanes. The state of California has formed an incident command structure known as Firescope. This system has been in place for many years and is a vital component for management of emergencies. The field operations guide [FOG] is a

booklet provided to emergency services to explain job duties, system parts and mutual aid expectations. The FOG breaks down duties for specific types of disasters. The guide has anticipated damage assessment as a key component of mitigating a disaster. Positions such as field observer and weather observer are identified as vital positions that need to be filled. Another position that asset with damage assessment is the damage inspection technical specialist. This person inspects damage and potential hazardous property and natural resources. The information gathered is then forwarded to the planning section of the management team (Office of Emergency Services, 2004). California also has formed a safety assessment plan [SAP] for post incident information gathering and to assure the safety of the community. This plan incorporates the use of a safety assessment team to provide a though evaluation of the community that has been effected by a disaster. The team uses a color coded system to identify the different levels of damage that a structure or nonstructure has received. The team also does a detailed form for each type of location that is being evaluated. Some of the areas that are being evaluated include structure, airports, bridges, geotechnical, pipelines, pump stations, reservoirs, roads and treatment facilities. Detailed information gathered from those locations includes construction, occupancy, description, hazards, sketches, postings and further action recommendations (Committee, 2008).

With the state of California the emphases is placed on a known type of incidents, but not knowing when those disasters will occur. The state of Florida has a plan with a component of the known hazard and a time that it may occur. Hurricanes are devastating with potential massive damage incurred on the community, but with prior knowledge of intensity, location and time. A large number of agencies have an initial damage

assessment plan or program. Those plans have the same key elements which include location, typing, extent of damage and hazards, these plans extend throughout the state. The Florida division of emergency management has recommended for the responders and citizens to prepare for upcoming hurricanes. They also have numerous programs for preparation, mitigation and assessment after the disaster has occurred. These include predisaster mitigation, residential construction, hazard mitigation, local and state mitigation, and flood assistance (Florida Division of Emergency Management, 2008). The state also has formed state emergency response teams [SERT] to assist with incident management and post incident assessment. Counties are encouraged to form formal initial damage assessment teams. The breakdown of those people making up the team are to include engineers, public safety, utilities, property assessors, building inspectors, insurance agents, red cross, real estate appraisers and health officials. The team is to look at damages to public and individual property. The individual assessment looks at damage to homes and business. Under the public assessment, damage is placed into categories. Those categories include debris clearance, emergency protection measures, road, water, building equipment, public utilities and others (Florida Division of Emergency Management, 2008). Another document that was formulated to help prepare and mitigate a pending hurricane is the modal procedures for response of emergency vehicles during hurricanes and tropical storms from the International Association Fire Chiefs [IAFC]. This document breaks down the phases of a hurricane emergency from preparation to recovery. One recommendation is to prepare two months prior to a possible hurricane season. This is to include inventories, target hazard identification, supplies and preparedness checks. One key consideration is to evaluate the current communications

system and to formulate alternative or secondary systems. During the time that landfall has occurred operations are limited or suspended, with responder's safety being the primary concern. Once operations resume after the hurricane, one of the first things to be accomplished is an immediate survey of emergency service personnel, equipment and facilities. This information is to be forwarded on to command to determine responder's capability. The area around each station is to be evaluated; this is to be done from the observation point of the station. The responders then move out of the stations and perform a "windshield survey", this is information gathered without leaving the apparatus. Keeping in mind that life safety and rescue are the top priority and sometimes stopping to render aid must be performed (International Association of Fire Chiefs, 2008).

The initial response and damage assessments are vital in getting a handle on managing a disaster. Initial assessment may be difficult due to the size and complexity of the event. Some areas may not be assessable due to the scope and size (Federal Emergency Management Agency, 2007a). The most important thing that must be performed during the initial phase of an emergency is rendering of aid to victims and rescue (Federal Emergency Management Agency, 1997). As damage assessment is being performed specific hazards need to be considered. Among those are utilities to include water leaks, gas leaks with gas pockets and power lines down that are still energized. Initial assessment is a vital part of disaster mitigation. The reason that this assessment is performed includes numerous reasons. The assessment helps with the commands size up of the incident. This in turn allows a more accurate strategy for mitigation. With strategy formulated, tactics can be determined and appropriate resources can be requested and

deployed to areas of need. Disasters may overwhelm the emergency services in an effected area, a true quick early assessment allows command to determine if mutual aid will be needed (Federal Emergency Management Agency, 2007a).

Immediate damage assessment typically is performed by the first units on the scene of disasters. They provide reports back to a command post, EOC or command officer. This command officer should tour the affected area prior to taking command if possible. This should be done promptly and without engaging in tactical operations. The use of a helicopter is preferred if a large area has been effected (Federal Emergency Management Agency, 2007a). Early on in a disaster the formulation of a command structure is vital in managing emergency services (Department of Homeland Security, 2007).

Initial damage assessment is normally performed by fire, police, emergency medical and public works personnel. The state of Kansas formed the Kansas Disaster Assessment Program in 1990. This is a team of building inspectors, structural engineers and architects that work with responders in the inspection of disasters to determine the stability of structures during rescue situations (Ryan & Mallory, 2003). The response and deployment of companies to structural collapse incidents is one of the most difficult and challenging incidents along with rescues that responders are likely to encounter (Naum, 2003). Structural damage assessment and possible rescue provide truly unique challenges and opportunities with training. Responders must recognize types of collapse, construction types, occupancy and limited experience responding to structural collapse (Collins, 2006).

Special precautions need to be considered during assessment if the disaster is an act of terrorism. Specialized resources are normally not easily available in the initial phase. Responders may not be familiar with distinct hazards in this type of emergency. Responders are considered targets in a terrorist event. The entire disaster site should be considered a crime scene, to include evidence preservation. High numbers of injuries and deaths should be expected and will become a hindrance during damage assessment (Federal Emergency Management Agency, 2004).

The use of aerial views helps responders and assessors gain a different perspective of a disaster area. The ability to look from multiple views to include overhead greatly helps with assessment. Aerial views allow assessors to view wide scale damage with a reduction in time compared to that of going street by street. The use of video and still photography can then be evaluated by specialist and command staff (Newcombe, 2006). The use of laser scanning from aerial sources allows for a newer technical way to perform damage assessment. A preincident scan is to be performed with the information stored for future use during a disaster. A scan is then performed after a disaster strikes. The preincident scan is then compared to the post incident scan to determine the extent and location of damaged areas (Schweier, Markus, & Steinle, 2004).

After an initial damage assessment and mitigation of the emergency, at this time a secondary assessment or postincident assessment must be performed. Time is not critical during this phase of damage assessment. A more detailed and specific assessment is done compared to the initial one. Documentation is vital at this point, video, photos, electronic, audio and paper documents are completed for various reasons. Some those reasons include historic preservation, assess monetary amounts of damage, assist with recovery

cost, determine the extent of vital community infrastructure, to determine if structures can be reconstructed or need to be demolished, to name a few. These postincident damage assessments are typically performed by emergency services, building officials, public works, engineers, tax assessors and architects, this only a partial list and varies in each community (Federal Emergency Management Agency, 2007a).

The detailed assessment helps determine monetary damage levels; this may in turn help with a request for declaration of a disaster area that may lead to a presidential declaration of federal assistance for the affected community (Federal Emergency Management Agency, 2006). The United States Congress also stepped in to help financially with a community after a disaster strikes. The act encourages preparedness, assistance during the mitigation of such a disaster and recovery with supplies along with finances to an affected community (Federal Emergency Management Agency, 2007b). When assessing monetary damage a common misconception is performed. The evaluation of direct structural damage is seen and addressed. The evaluation of contents is sometimes overlooked along with the impact of lost income at businesses and industry. When those businesses and industry are not up and operational the community is affected by taxes, employment and stability (Cochrane, 2004). When dealing with historical buildings, the use of architectural conservators, historic preservation agencies, Federal Emergency Management Agency and structural engineers need to be involved prior to cleanup. This is extremely vital for buildings on the national register of historic places (Federal Emergency Management Agency, 1997).

Procedures

While performing the research, numerous different components made up the final product. This section should function as a road map for anyone needing to replicate the research.

When looking for a subject to do the original research. The City of Kingsport was evaluated to determine areas of concern. The subject was tied into the National Fire Academy course that was attended, Executive Analysis of Fire Service Operations in Emergency Management. From that point a list of potential problems was formulated to be evaluated. The list was then placed in descending order, the perceived most sever to the least. To determine a single issue, a tie to the National Fire Academy class was addressed. A relation to the United States Fire Administration was evaluated, specific subjects that deal with multi-hazard risk reduction with assistance in disaster mitigation. The list of problems was then reduced based on availability of information about the subject and the ability to produce original research for Kingsport. After a subject was determined, a problem statement was formulated. The purpose statement was then developed to help correct the problem. From here research questions were developed with correction of the problem and to guide the research. Those questions need to direct the research for the location that is being looked into. A type of research needs to be decided upon, this will be picked from a list that include historical, descriptive, action and evaluative. The type of research most productive, time permitting and realistic will be a good choice to formulate the project. The complete proposal is then sent to the evaluator for feedback and approval. The evaluator then provides guidance and suggestions for a successful research project.

After the proposal has been approved by the evaluator, it was time to start looking at what others have found on the subject. Research began by looking into the subject at the Learning Resource Center (LRC), which is located in Emmitsburg, Maryland on the campus of The National Fire Academy. The first area of the center to be searched was the section that holds Applied Research Projects (APR). The research done by others is a exceptional place to stimulate ideas and potentially give guidance to answer questions. Special care is then used to use primary sources and not secondary sources. After reviewing other peoples APR's, emergency services books, reports and periodicals are available at the center to build literature review information. If a person is unable to review literature at the LRC, interlibrary loans can provide information through local libraries. The collection at the LRC can be explored through the libraries card catalog, which is computer based and on the internet. The next area that was used in this project, were random searches on the Worldwide Web. The local library and local community collages library were used to review periodicals, reports and studies. These documents help give perspective outside to the fire service. This was done with search words such as disaster response, damage assessment, disaster size up, and initial disaster actions. The problem statement can also lead to different areas to search for other information than fire or emergency service fields. While various areas were explored, some information was already available but not specific to the City of Kingsport.

To gather information specific to Kingsport, data was gleaned from existing reports, government documents and plans. The Kingsport Fire Department has been a part of the City of Kingsport's emergency preparedness plan since the inception in the mid-1980s. This plan lend to large quantities of information about previous plans, years,

changes, and priorities. Other damage assessment plans were reviewed for content; these included the county, state and federal plans. Other states and agencies with high-levels of disasters were also reviewed. Those states and agencies typically activate their plans on a regular basis and are exercises more than the local plans. As plans were gathered, that information was compiled and assessed to the ability to use it in this project.

The next portion of the report was to look into what other departments and agencies are doing to assess damage in a disaster. The first thing that needed to be done was formulate a list of agencies that have a vested interest in damage assessment within their coverage zones. Seven questions were produced and distributed on a limited basis. The list was expanded to a total of 40 agencies. Of the agencies questioned 38 participated and two provided no information. Those questions were formulated to determine what other agencies are doing with damage assessment planning. The questions cover initial and post incident phases of damage assessment. They also look to whom is providing the damage assessment during a disaster. The first departments that were identified to be contacted were the fire services in the State of Tennessee. A total of 25 fire departments were questioned about their damage assessment plan. The second portion of the list was comprised of law enforcement, emergency management directors, airport, Red Cross and private businesses. Those 13 departments were determined by their potential involvement in a disaster in a community and to provide a level of diversity to the group questioned. A breakdown of the agencies questioned is in (see Appendix C). Then there was a formation of questions to be answered by each department that was questioned. The questions were closed ended; this was done to cause limited answers from the group (see Appendix D). The questions were developed with

the theory of finding out what programs other departments are currently using to perform initial and postincident damage assessment. The questions probed programs that are self generated by the agency or standardized. Questions were formulated to gain insight to other agencies format, mentality and involvement. Questions also provide the ability to formulate totals and percentages from the answers. Each department was then contacted by mail, email or in person. If the department had a designated emergency planner, that person was questioned about the department's damage assessment plan. Some of the departments did not have a designated emergency planner, at that time a chief officer or employee which has knowledge about the procedures within that agency was questioned about their plan. Each department was asked the same questions from the questionnaire and those results were documented on a form. The results were then compiled for evaluation. I was unable to get all the departments targeted to participate in the questionnaire. Many of the departments have not been exposed to the plans used by the other agencies and are biased to the agencies own assessment plan. The results from those questionnaires are saved and filed by the author. The evaluation of existing programs lies with the interpretation of the writer of this report. This research project was limited to the available information previously produced. The depth of the damage assessment plans is apparently an issue that receives various addressing from agency to agency, but the success of existing programs is lacking in documentation. There were informal discussions with other chief officers from the State of Tennessee. These discussions pertained to damage assessment and self analysis of one's own department. Those conversations were not structured, recorded or documented. Predetermined questions were not formulated.

This research project was performed under the action format. The data collected was used to answer the research questions as they relate to the current situation. The problem is a touch more complex than not having an initial damage assessment plan. I had to look into the current situation regarding the Kingsport Fire Department, fire service, local emergency mitigation and planning, state emergency mitigation and planning, and on a national level.

Some of the questions have already been addressed with previous research projects, reports, studies, and written articles. That information had to be gleaned and correlated to the current problem as it pertains to the Kingsport Fire Department. A mix of literature review and original research was done to achieve this project. The use of local research was vital when trying to look at this problem as it pertains to the Kingsport Fire Department.

The literary resources that have been reviewed on this project are assumed to be objective and unbiased. The NFA and the EFO curriculum have put a limitation of six months on this project. During that time it is to be researched, written, and sent to the appropriate location. (Department of Homeland Security, 2008). Anyone answering the questionnaire was assumed to be answering truthfully or may be bias for some unknown reason. This document was written using the American Psychological Association fifth edition format.

Results

The information gathered to this point will help answer each research question.

1. What is the department's ability to prioritize disaster response?

The first question of this research project deals with Kingsport Fire Departments ability to prioritize disaster response. Looking at the status of the departments damage assessment is loosely addressed in the current edition of the Kingsport emergency preparedness plan, no in-depth initial assessment plan is in place currently. The emergency services are responsible for initial assessment. The structure of that initial assessment is based on first come first served. Services and emergency responses are determined by the order that 911 calls are received. A damage assessment is performed upon arrival by individual units. The use of a formal post incident damage assessment plan is in place and structured to perform its purpose. The city has been fortunate in that the use of this plan has never been activated. Upon questioning designated members of the assessment team after the initial training for the team, no follow-up training or exercises have been performed.

2. What are the damage assessment plan elements for the Kingsport Fire Department?

When looking at what components make up a good quality assessment plan. Information was hard to find and some assumptions have to be made about a plan. During the research no document, report or article was discovered which shed light on exact components that need to be within an initial damage assessment plan. During a recent meeting of the state fire chiefs in Kingsport, informal discussions were held with five chief officers from throughout the state of Tennessee. Those discussions included damage assessment. The common theme was a systematic approach to initial damage assessment is a must. A chief officer from the Memphis area made the statement “During times of a disaster when kayos can run rampant managing the incident is a priority and field damage

reports help to get resources to the areas with the most need". During those informal discussions, various quality components were mentioned, these included: none complex or easy use, quick, ability to document varying degrees of measuring damage, ability to use at multiple locations and compatible with other documents. During reviewing other agencies documents, some of the same elements are recurring in those plans. The current written plans that were reviewed exposed a systematic method to perform assessment. All the plans did initial self assessment of how functional are the emergency services immediately after the disaster strikes. All the plans addressed vital community services such as roadway, utilities, and emergency services. The plans also looked at varying levels of damage to the community. Structural damage was given percentage of damage or various degree of water, wind or collapse damage. The plans looked at human deaths and injuries measuring the levels of suffering. The use of emergency services doing "windshield surveys" of damaged areas is the preferred method of initial damage assessment. This is the method used by all agencies in varying degrees. The ability to gather quickly, the assessments and transfer the findings to an Emergency Operations Center (EOC) or command post was a vital portion of disaster management. Numerous plans use radio, cellular phone, satellite phone, and by runners delivering messages.

The use of questionnaires helps gather information about who is performing initial and post incident damage assessment. The questionnaires also reveal the level of formal planning before a disaster strikes. The numbers confirm that emergency management has plans in place for a disaster. Law enforcement has limited plans or is unaware of any plans. Fire departments are basically a coin flip over having a plan, and have been dependent on outside agencies to formulate plans for them. Other agencies in

the community are better prepared than one may think of on the surface. The results are from the region and state and may differ in other areas of the country.

Damage Assessment Questionnaire (Fire) (23)		
Does your agency have a plan?	Yes – 13	No – 10
Initial assessment portion?	Yes – 10	No – 13
Who performs the initial assessments?	Fire Apparatus – 7 Fire Command – 5 Rescue – 2 Law Enforcement – 4	Risk Management – 2 Assessment Team – 6 Citizens – 1 Other (EMA) - 3
Recovery phase portion?	Yes – 10	No – 13
Who performs the recovery assessments?	Fire Command – 6 Rescue – 1 Public Works – 2 Assessment Team – 4	Law Enforcement – 1 Risk Management – 1 Other – 6
What areas are assessed?	Infrastructure – 9 Utilities – 13 Special Hazards – 6	Structure – 16 Nonstructural – 6
Where was your plan formulated?	Inside Agency - 4	Outside Agency - 13

Damage Assessment Questionnaire (EMA) (5)		
Does your agency have a plan?	Yes – 5	No – 0
Initial assessment portion?	Yes – 4	No – 1
Who performs the initial assessments?	Fire Command – 1 Public Works – 1 State / Federal – 1	Risk Management – 1 Assessment Team – 3 Other (EMA) - 1
Recovery phase portion?	Yes – 3	No – 2
Who performs the recovery assessments?	Fire Command – 1 Public Works – 1 Assessment Team – 4	State / Federal – 1 Risk Management – 1 Other – 2
What areas are assessed?	Infrastructure – 5 Utilities – 3 Special Hazards – 3	Structure – 4 Nonstructural – 3
Where was your plan formulated?	Inside Agency - 1	Outside Agency - 4

Damage Assessment Questionnaire (Law Enforcement) (3)		
Does your agency have a plan?	Yes – 0	No – 3
Initial assessment portion?	Yes – 0	No – 3
Who performs the initial assessments?	Fire Command – 1 Public Works - 1	Assessment Team – 1
Recovery phase portion?	Yes – 0	No – 3
Who performs the recovery assessments?	Assessment Team – 1	Other – 1
What areas are assessed?	Infrastructure – 2 Utilities – 2 Special Hazards – 1	Structure – 2 Nonstructural – 2
Where was your plan formulated?	Inside Agency - 0	Outside Agency - 1

Damage Assessment Questionnaire (Other) (7)		
Does your agency have a plan?	Yes – 5	No – 2
Initial assessment portion?	Yes – 5	No – 2
Who performs the initial assessments?	Fire Apparatus – 1 Fire Command – 2 Rescue – 1 Law Enforcement – 1	Risk Management – 2 Assessment Team – 2 Fire Prevention – 1 Other (EMA) - 1
Recovery phase portion?	Yes – 3	No – 4
Who performs the recovery assessments?	Fire Command – 1 Rescue – 1 Fire Apparatus – 2 Fire Prevention - 1 Assessment Team – 2	Law Enforcement – 1 State / Federal - 1 Risk Management – 1 Other – 2
What areas are assessed?	Infrastructure – 2 Utilities – 4 Special Hazards – 4	Structure – 4 Nonstructural – 2
Where was your plan formulated?	Inside Agency - 5	Outside Agency - 2

Damage Assessment Questionnaire (Total) (38)		
Does your agency have a plan?	Yes – 23	No – 15
Initial assessment portion?	Yes – 19	No – 19
Who performs the initial assessments?	Fire Apparatus – 8 Fire Command – 9 Rescue – 3 Law Enforcement – 5 EMS – 0 Fire Prevention – 1	Risk Management – 5 Assessment Team – 11 Public Works – 3 Citizens – 1 State / Federal - 1 Other (EMA) - 5
Recovery phase portion?	Yes – 16	No – 22
Who performs the recovery assessments?	Fire Command – 8 Fire Apparatus - 1 Rescue – 2 EMS - 0 Public Works – 3 Assessment Team – 9	Law Enforcement – 2 Risk Management – 3 Fire Prevention – 1 State / Federal – 2 Citizens - 0 Other – 6
What areas are assessed?	Infrastructure – 18 Utilities – 22 Special Hazards – 14	Structure – 25 Nonstructural – 13
Where was your plan formulated?	Inside Agency - 10	Outside Agency - 20

An initial damage assessment form with instructions was formulated to be used by the Kingsport fire department, from the information that was gathered from informal discussion, interviews, questionnaire and review of current plans used by other agencies.

3. What plan best fits the needs of the Kingsport Fire Department?

The formation of an initial damage assessment form is a tool to be used with management of a disaster in the emergency or mitigation phase. This is a document that will closer immolate the current forms that are being used for post incident assessment. (see Appendix B) Those documents are provided by the State of Tennessee emergency management agency. As these forms are the ones that would be utilized if a county assessment team was activated. The same forms that a state deployed team would use in the event of a local disaster needing their assistance. Those forms have been time tested and approved; prior disasters in the state have used these forms with satisfaction. The current state forms along with the incident management 200 series of forms are utilized on disasters in the State of Tennessee. This assures adequate documentation for reimbursement, historic accuracy and incident management. The Kingsport Fire Department needs a plan for immediate implementation. Disasters in Kingsport typically do not give warning prior to striking.

4. What are the elements that make up a quality damage assessment plan?

The elements of a damage assessment plan for Kingsport Fire Department is a compilation of other agencies and an evaluation of what potential disasters may strike the city and county. The form and instructions are key components that cover quick self assessment, ability to perform initial assessment, multi-type locations, measurement of

the total damage, easy to use forms, noncomplex, clear, concise, and single location use. (see Appendix E)

The current post incident damage assessment plan is detailed and geared to documentation and recovery. This portion of the citied plan is multi-disciplined and potentially takes a period of time to enact. While it does slightly address handling of emergencies during a disaster, it is designed for management during recovery. Each department is responsible for assessment of its specialty (i.e.: public works access roads and utilities). This does not take into account an all hazards approach to initial emergency response to disaster victims, rescue or human needs. (see Appendix E)

Discussion

The findings are limited as it pertains to damage assessment. The information related to initial damage assessment is even sparser. There are numerous plans in the emergency service for postincident or recovery phase damage assessment. Documentation is widely used to gather historic data, monetary reimbursement and community recovery. Initial assessment needs to be performed quickly and accurately to help manage a disaster. Initial self assessment must be performed to determine emergency responder's ability to render aid to disaster victims (International Association of Fire Chiefs, 2008).The use of formal initial damage assessment forms and planning varies with agencies. Of the agencies questioned, half had a plan for initial assessment. Public safety provided a large portion of those assessments but a predestinated and trained assessment team made up the largest group of participants. The results of the

questionnaire show that a universal plan for initial assessment is needed. The status for systematic damage assessment is none existent.

Kingsport is no different from most fire services across the state. Kingsport has a plan and forms for postincident or recovery phase assessment of a disaster. California has a plan that addresses damage assessment in the initial and recovery evaluation phase (Committee, 2008). This plan has been tested with numerous disasters and performed by trained personnel. The State of Tennessee has a plan that has a plan that incorporates a large number of the California plans components. The current plan used by the city of Kingsport mirrors the state and county recovery phase plan. The lack of an initial damage assessment plan makes the fire department vulnerable to poor or unmanaged response to a disaster in the city limits. The document that has been formulated from this research project addresses the need of that lost component (see Appendix E). The plan has many of the elements that are universally used to make up other initial and post incident assessment plans. The plan uses multiple locations to include structural, nonstructural, utilities, infrastructure and special hazards (Federal Emergency Management Agency, 2007a). The ability to measure the extent of damage allows flexibility in describing damage levels. The use of documentation initially will assist with getting a grasp on resource allocation, request and deployment. The plan also assists with determining the magnitude of the disaster and the justification for the need of federal aid in a disaster (FEMA 2006). The management and mitigation are difficult at best with experienced personnel handling the incident. But the City of Kingsport has little or no experience in handling a large scale disaster (see Appendix A). This places emergency responders and local government at a huge disadvantage.

Predisaster planning and utilization of this research projects assessment form and plan could help manage the initial portion during mitigation of a disaster. These management components along with the use of positions such as field and weather observer help planners formulate mitigation options for a command staff (Office of Emergency Services, 2004)

Kingsport Fire Department needs to prepare for disasters with plans and documents that provide the best chance for success incase of a disaster. The initial damage assessment will be the responsibility of the local government and emergency responders (Tennessee Emergency Management Agency, 2007). Even if the state and federal government deploy to help the local response, a delay of hours or even days could occur and the local response must function alone with no outside help. This does not take into account that a large area may be affected and other communities may be affected also needing assistance. Those communities may be in worse condition and receive aid before Kingsport. Look at how the federal government responded to the Hurricane Katrina situation in Mississippi and Louisiana. Aid was rendered by the local responders that were capable, for a period prior to the state and federal government's aid.

This research project has gaps that were exposed when looking into answering the research questions. Kingsport's ability to prioritize disaster response is a best guess situation. The author of this document reviewed and evaluated performances of the current city plan. The system that is in place currently in Kingsport and other locations were compared. The document formulated from this research project will be placed into service. In the author's opinion, the plan and document are currently the best fit for Kingsport Fire Department. The use of this plan must be exercised to determine if it is the

best plan for Kingsport. Without a plan and the accompanying documentation, responders will be taxed with handling a disaster without tools that would assist in management of disasters. Those responders may be able to handle that situation with little or no problem. But the use of a damage assessment plan that has elements from other agencies which have been used during disasters and have succeeded increases the probability of handling the disaster adequately and safely.

A disaster is unlikely to affecting the city, or give prior warning allowing time to prepare. Kingsport is more likely to have a disaster that is a sudden occurrence or with limited warning. This dictates the need for a plan that can be implemented quickly, is simple to use and is structured (Federal Emergency Management Agency, 2007a). Reality is that emergency responders will be performing all the initial damage assessment. The findings from other agencies in the questionnaire show that other community's public safety is responsible for assessment duties (see table in results). The citizens look to the Kingsport Fire Department to manage disasters in our city. The fire department must prepare and have a plan in place for the chance a disaster strikes.

Recommendations

The Kingsport Fire Department needs to put a formal systematic initial damage assessment plan in place. The form and instructions that were formulated from this research project fits the void of not having a plan. The documents need to be placed on all vehicles operating within the fire department. An electronic copy needs to be accessible to all mobile data terminals on emergency apparatus. The document also needs to be

incorporated into the Kingsport Emergency Management Plan. This will ensure that all city departments have access to the document.

Training sessions on the content and how to use the document need to be performed. Those sessions should include everyone that may come in contact with the document. This is to include city, county, regional and state response agencies. The initial orientation sessions should be performed during the 2009 calendar year. Practice sessions should be preformed to ensure proficiency by personnel that will be working with the forms and those that use the documents information to manage disasters. Exercises and table top drills should also be preformed to assure experienced and new personnel are able to maintain the use of this tool. These exercises need to be done on an annual basis. The practice of providing those forms to the EOC or command staff needs to be implemented from day one.

The forms should be utilized by planning sections to formulate response plans to areas of need. A copy of the completed forms should be available for state and federal officials for historic data, reimbursement and potential damage measurement to an affected area. These completed forms will also need to be provided to the post incident assessment team. This allows a measurement at various times during a disaster. These forms need to be used if the fire department is requested to provide mutual aid to other communities. The forms are generic to the point that it is not specific to Kingsport

Kingsport Fire Department needs to prepare for a possible disaster with more preincident planning and assessment. Target hazards need to be identified and evaluated with preincident documentation being a vital component. Special hazards need to be identified and prioritized. These should include terrorist techniques, flooded zones with

swiftwater and hazardous debris. The need for preincident planning should include aerial photography, mapping and modeling. The use of alternative communications is a must in a disaster situation. A plan for multi-disciplines being able to communicate should be formulated immediately.

In conclusion, Kingsport Fire Department currently has no formal plan or systematic method of performing initial damage assessment. The document formulated helps fill the void of disaster management. The plan should be implemented immediately. After training and preincident target assessments have been preformed. An annual evaluation of the plan and documentation should be preformed. The postincident assessment and plan appear to be adaquete at this time. An annual evaluation should be preformed of the postincident plan. The Kingsport Emergency Management Plan should start moving to the Emergency Support Function format in the next revision.

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Appendix A

Kingsport and Sullivan County Disaster History

Sullivan County Multi- Jurisdiction

Local Hazard Mitigation Plan

September 2005

Disaster Declaration		
Kingsport	**Date**	**Sullivan County**
	March 1997	PRS1167 Severe Storm and Ice $739,700
	January 1998	PRS1197 Snow and Ice $1,788,269
	May 1998	PRS1215 Straightline Winds $178,600

Natural Disasters		
Kingsport	**Type and Damage**	**Sullivan County**
1995	Drought	1995
1973 – Level VI	Earthquake	1973 – Level VI
January 1996	Flooding	January 1996
March 1996	Flooding	March 1996
May 1996	Flooding	May 1996
May 1997	Flooding	May 1997
July 1999	Flooding	July 1999
July 2001	Flooding	July 2001
March 2002	Flooding ($5,000,000)	March 2002
February 2003	Flooding (18,100,000)	February 2003
April 2003	Flooding	April 2003
August 1993	Flooding ($1,000)	
February 1994	Flooding ($5,000)	
March 1994	Flooding ($50,000)	
May 1995	Flooding ($5,000)	
August 1995	Flooding ($1,000)	
April 1974	Tornadoes	April 1974
October 1977	Tornadoes	October 1977

Natural Disaster		
Kingsport	**Type and Damage**	**Sullivan County**
	Thunderstorm Winds	6/16/1957
	Thunderstorm Winds	6/17/1957
	Thunderstorm Winds	9/14/1957
	Thunderstorm Winds	6/3/1962
	Thunderstorm Winds	8/3/1964
	Thunderstorm Winds	5/8/1967
	Thunderstorm Winds	4/23/1968
	Thunderstorm Winds	7/22/1968
	Thunderstorm Winds	6/24/1969
	Thunderstorm Winds	6/28/1969
	Thunderstorm Winds	7/25/1969
	Thunderstorm Winds	5/16/1970
	Thunderstorm Winds	6/5/1970
	Thunderstorm Winds	9/16/1971
	Thunderstorm Winds	5/23/1973
	Thunderstorm Winds	1/28/1974
	Thunderstorm Winds	4/4/1974
	Thunderstorm Winds	4/4/1974
	Thunderstorm Winds	4/8/1974
	Thunderstorm Winds	12/5/1977
	Thunderstorm Winds	7/20/1983
	Thunderstorm Winds	7/24/1983
	Thunderstorm Winds	8/11/1983
	Thunderstorm Winds	8/11/1983
	Thunderstorm Winds	9/3/1984
	Thunderstorm Winds	7/16/1988
	Thunderstorm Winds	5/6/1989
	Thunderstorm Winds	6/2/1989
	Thunderstorm Winds	6/12/1989
	Thunderstorm Winds	5/28/1990
	Thunderstorm Winds	6/22/1990
	Thunderstorm Winds	4/9/1991
	Thunderstorm Winds	4/29/1991
	Thunderstorm Winds	7/10/1991
	Thunderstorm Winds	8/29/1991
	Thunderstorm Winds -500K	1/28/1994
	Thunderstorm Winds -10K	5/24/1996
	Thunderstorm Winds -15K	7/14/1996
	Thunderstorm Winds -10K	1/5/1997
	Thunderstorm Winds -34K	2/14/2000
	Thunderstorm Winds -16K	5/27/2000

	Thunderstorm Winds -23K	8/9/2000
	Thunderstorm Winds -23K	8/10/2000
	Thunderstorm Winds -30K	11/9/2000
	Thunderstorm Winds -8K	5/21/2001
	Thunderstorm Winds -14K	7/4/2001
	Thunderstorm Winds -33K	2/3/2003
	Thunderstorm Winds	7/9/2003
	Thunderstorm Winds	7/10/2003
	Thunderstorm Winds -25K	5/31/2004
8/20/1993	Thunderstorm Winds -1K	
8/26/1993	Thunderstorm Winds -5K	
6/11/1995	Thunderstorm Winds	
7/25/1995	Thunderstorm Winds	
8/11/1995	Thunderstorm Winds -10K	
4/13/1996	Thunderstorm Winds	
5/21/1996	Thunderstorm Winds -5K	
4/16/1998	Thunderstorm Winds -9K	
5/25/1998	Thunderstorm Winds -1.5M	
6/24/1998	Thunderstorm Winds -2K	
7/19/1998	Thunderstorm Winds -25K	
7/24/1999	Thunderstorm Winds -2K	
8/1/1999	Thunderstorm Winds -5K	
8/3/2000	Thunderstorm Winds -21K	
11/9/2000	Thunderstorm Winds -13K	
5/21/2001	Thunderstorm Winds -8K	
5/21/2001	Thunderstorm Winds -30K	
7/8/2001	Thunderstorm Winds -21K	
8/23/2001	Thunderstorm Winds -1K	
7/2/2002	Thunderstorm Winds -20K	
7/3/2002	Thunderstorm Winds -15K	
11/10/2002	Thunderstorm Winds -25K	
5/2/2003	Thunderstorm Winds -12K	
6/11/2003	Thunderstorm Winds -15K	
5/26/2004	Thunderstorm Winds -300K	
7/5/2004	Thunderstorm Winds -15K	
	Hailstorm	4/23/1967
	Hailstorm	7/25/1969
	Hailstorm	5/5/1977
	Hailstorm	9/27/2003
5/24/1996	Hailstorm	
4/3/1998	Hailstorm	
8/1/1999	Hailstorm	
5/28/2000	Hailstorm	
7/2/2002	Hailstorm	
5/13/2005	Hailstorm	

Appendix B

Kingsport Disaster Situation Reports

STATE OF TENNESSEE

Local Government Situation Report (SITREP)

TO:SEOC COUNTY:_____ DATE/TIME SENT
SITREP#:_____

Disaster Information	Phonetic	Damage #'s
Type of Disaster:	ALPHA	N/A
Time of Occurrence:	BRAVO	N/A
Location: (Town(s)/Community(s)	CHARLIE	N/A
Fatalities: Confirmed_____ Missing_____	DELTA	
Number of Persons Hospitalized:	ECHO	
Number of Persons Treated and Released:	FOXTROT	
Number of Persons Evacuated:	GOLF	
Number of Persons Sheltered: (List names of Shelters in comment section)	HOTEL	
Number of Private Homes Destroyed:	INDIA	
Number of Private Homes Damaged: MINOR: MODERATE: MAJOR:	JULIET	
Number of Mobile Homes Destroyed:	KILO	
Number of Mobile Homes Damaged: MINOR: MODERATE: MAJOR:	LIMA	
Number of Public Buildings Destroyed:	MIKE	
Number of Public Buildings Damaged: MINOR: MODERATE: MAJOR	NOVEMBER	
Number of Private Businesses Destroyed:	OSCAR	
Number of Private Businesses Damaged: MINOR: MODERATE: MAJOR:	PAPA	
Number of Bridges Closed: Reason:	QUEBEC	
Number of Roads Closed : Reason:	ROMEO	
Names of Utilities Destroyed:	SIERRA	
Names of Utilities Damaged:	TANGO	
Extent of Crop Acres Damaged or Destroyed or Farm Losses:	UNIFORM	
Other Damages / Comments:		

PREPARED BY:_____ RECEIVED BY:_____ DATE/TIME RECEIVED:_____

(See Instructions on Back) **February 15, 1999**

APPENDIX 5 TO ESF 5

A ***SITUATION REPORT (SITREP),*** when properly filled out, provides valuable Disaster and/or Damage Intelligence to the Governor of Tennessee. SITREP's are used to indicate the type and magnitude of an event and assess *immediate needs.*

SITREP data are to be compiled and entered on **SITREP** forms at the County Government level and transmitted to the State Emergency Operations Center (SEOC) via facsimile (fax) ((***615-242-9635***)), telephone or radio. The effectiveness of initial State response is contingent upon receiving reliable information from the impacted area(s). It is the responsibility of Local Emergency Management Directors to insure initial Disaster/Damage Intelligence information is collected from the impacted areas within his/her jurisdiction. At the County EOC, initial Disaster/Damage information is compiled and transferred to the **SITREP** form and forwarded to the SEOC.

SITREP's are used by Local Governments and State Disaster/Damage Analyst to determine if the reported destruction warrants a formal damage assessment effort. Collection of **SITREP** data is the *first step* in damage assessment. **SITREP** data DOES NOT in and of itself constitute formal damage assessment.

INSTRUCTIONS FOR COMPLETING SITUATION REPORT (SITREP)

When reporting **SITREP** data by telephone or radio, use the phonetic alphabet shown on the **SITREP**, i.e., Kilo - 10, would indicate 10 mobile homes destroyed.

Provide the requested information on line entries ECHO through UNIFORM. The initial **SITREP**(s) for each affected town or community should be transmitted to the SEOC as soon as damage reports are received from first responders in the field. Up-dated SITREP's should be transmitted as new data is received; minimum of two per day.

1. *DATE/TIME SENT*: Enter the date and time of transmission to State EOC.
2. *SITREP #*: Start with the number 1, then 2, 3, etc.
3. *CUMULATIVE TOTAL*: If the initial SITREP indicated 4 houses destroyed and 30 minutes later 2 more were reported destroyed, the next SITREP would list 6 houses destroyed.
4. (ALPHA) *TYPE OF DISASTER*: Enter the type of disaster, i.e., flooding, tornado, HM, etc.
5. (BRAVO) *TIME OF OCCURRENCE*: Enter time the disaster struck the town or community.
6. (CHARLIE) *LOCATION* (Town or Community): Enter the name of the town or community affected.
7. (DELTA through UNIFORM) Provide the requested information as it becomes available.
8. *OTHER DAMAGES/COMMENTS*: Enter *things* not covered elsewhere on the **SITREP**. *Example: Jail heavily damaged, 20 of 50 inmates escaped.*
9. *PREPARED BY*: Enter the name of the individual who prepared the SITREP.
10. *RECEIVED BY*: Leave ***blank***, completed by SEOC personnel.
11. *DATE/TIME RECEIVED*: Leave ***blank***, completed by SEOC personnel.

NOTE: THE SITREP IS A LIVING DOCUMENT. IT CHANGES AND GROWS IN MINUTES, HOURS AND SOMETIMES DAYS, UNTIL THE FULL EXTENT OF DEVASTATION IS DETERMINED.

APPENDIX 8 TO ESF 5

PUBLIC ASSISTANCE FORM
(Use one form for each damage site)

PUBLIC ASSISTANCE (PDA) CATEGORY "C" | **PHOTO DATE**_____

_____County Map Marked Site #_____

ROADS

Type Road: Improved_____Unimproved_____
Type Subsurface: Rock____Gravel____Shell_____
Chert____Borrow____
Type Surface: Concrete____Asphalt____DBST____
Gravel_____Shell_____Dirt_____

Thickness_____"
Type of Damage_____
Dimension of Damaged Area_____
Estimate of Damage_____

BRIDGES

Type Construction
Substructure: Concrete____Steel____Timber____
Superstructure:Concrete____Steel____Timber____
Deck: Concrete____Steel____Timber____

Number of Spans_____Length of Span_____
Length of Bridge at Road Centerline_____
Width of Bridge_____ADT at Bridge_____

Type of Damage_____
Estimate of Damage_____

CULVERTS

Type of Construction:Concrete____Metal____Wood____
Wing wall Concrete____Metal____Wood____
Size of Culvert_____

Type of Damage_____
Estimate of Damage_____

COMMENTS

Use other side of this form if more space is needed for preliminary damage assessment

APPENDIX 6 TO ESF 5

INITIAL DAMAGE ASSESSMENT WORKSHEET

*COUNTY:*_____ *PAGE*_____ *of* _____

STREET / ROAD	*ADDRESS*	*% DAMAGE*	*REMARKS*

February 15, 1999

STATE of TENNESSEE

(Local Government Damage Assessment Form)

*COUNTY:*_____ *TYPE of EMERGENCY:*_____

*DATE & TIME:*_____

*DAMAGED AREA:*_____ *ASSESSMENT TEAM #:*_____

Category	Minor 1 to 15%	Moderate 16 to 30%	Major 31 to 50%	Destroyed 50% or >	Dollar Estimate
Houses					
Apartments					
Units					
Buildings					
Mobile Homes					
Public Buildings					
Businesses					
Farm Buildings					
Other					

*Average Bldg Cost:*_____

*Insurance Coverage %:*_____

DAMAGE ESTIMATION KEY

Flood	Wind	Earthquake
1 to 15% Covers Floor	Shingles/Siding gone	Cracked Windows/Chimney
16 to 30% 2.1"- 18"	Roof Decking /Wall	Wall Cracks / Dislodged Bricks
31 to 50% 18.1"- 30"	Roof Off / Outside Walls	Wall Collapse / Broken Brick

February 15, 1999

INITIAL DAMAGE ASSESSMENT WORKSHEET

*COUNTY:*_____ *PAGE* _____ *of* _____

STREET / ROAD	*ADDRESS*	*% DAMAGE*	*REMARKS*

APPENDIX 5

INDIVIDUAL ASSISTANCE FORM (FLOODING)

TENNESSEE EMERGENCY MANAGEMENT AGENCY
INDIVIDUAL ASSISTANCE
DAMAGE SURVEY

DATE_____ TIME_____ COUNTY_____ CITY_____

NAME | AGE | NO. LIVING IN HOME

TOTAL ANNUAL INCOME FROM ALL SOURCES

PROPERTY ADDRESS OWN____RENT____PHONE

OWNER'S NAME IF RENTED PHONE

Windshield _____
Personal Interview _____
Insurance Co _____

TEMPORARY ADDRESS_____

PHONE

TYPE OF STRUCTURE

Home____Mobile Home____Apt____Other____
Single Level____Basement____Multi-Level____Masonry____Wood____Other____.

ESTIMATED VALUE OF STRUCTURE SOURCE

STRUCTURE		CONTENTS	
INSIDE LEVEL	% DAMAGE	INSIDE LEVEL	% DAMAGE
1"	10%_____	2"	10%_____*
30"	25%_____	12"	25%_____*
5'	50%_____	36"	38%_____*
7.5'	75%_____	37+"	50%_____*
10'	100%_____		
Water inside Mobile Home =	100%_____	*Of Value of the Structure	

STRUCTURAL DAMAGE $_____CONTENTS DAMAGE$_____TOTAL $_____

INSURANCE COVERAGE YES____%____NO____COMPANY_____

DOC. NO. SURVEYOR

COMMENTS

Appendix C

Questionnaire Participants

Questionnaire Participants

1. **Rural/Metro Fire Department**
2. **Greeneville Fire Department**
3. **Shady Valley Volunteer Fire Department**
4. **Jonesborough Fire Department**
5. **Bristol Fire Department**
6. **Avoca Volunteer Fire Department**
7. **Cumberland Fire Department**
8. **Henderson Fire Department**
9. **Memphis Fire Department**
10. **Ashland Volunteer Fire Department**
11. **Alcoa Fire Department**
12. **Cleveland Fire Department**
13. **Tipton County Volunteer Fire Department**
14. **Brighton Fire Department**
15. **Morristown Fire Department**
16. **Newport Fire Department**
17. **Milan Fire Department**
18. **Lenoir City Fire Department**
19. **Jackson Fire Department**
20. **Nashville Fire Department**
21. **Munford Volunteer Fire Department**
22. **Bradley County Fire department**
23. **Johnson City Fire Department**
24. **Harriman Fire department**
25. **Greene County Emergency Management Agency**
26. **Unicoi County Emergency Management Agency**
27. **Washington County Emergency Management Agency**
28. **Loudon County Emergency Management Agency**
29. **Bradley County Emergency Management Agency**
30. **Greene county Sheriff Department**
31. **Sullivan County Sheriff Department**
32. **Bristol Police Department**
33. **American Red Cross**
34. **East Tennessee Regional Health Department**
35. **Wellmont Hospital System**
36. **Tennessee Eastman Company**
37. **Tri-Cities Regional Airport**
38. **Sullivan County Hazardous Material Response**
39. **Kingsport Life Saving Crew**
40. **Tennessee Municipal Advisory Service**

Appendix D

Damage Assessment Questionnaire

Damage Assessment Questionnaire

Agency Name: _____

Please skip questions that do not pertain to your agency or you do not know the answer too.

1. Does your agency have a disaster damage assessment plan? Yes_____ No _____
2. If you have a plan, does it have an initial quick assessment portion in the plan? Yes ___ No___
3. Who performs the initial damage assessment?

Fire Apparatus	_____	Fire Prevention Bureau	_____	Law Enforcement	_____
Fire Command	_____	Public Works	_____	Risk Management	_____
EMS	_____	Trained Assessment Team	_____	Citizens	_____
Rescue	_____	State/Federal	_____	Other	_____

4. Does your agency have a disaster damage assessment plan that is conducted during the recovery phase of a disaster? Yes_____ No _____
5. Who performs the recovery damage assessment?

Fire Apparatus	_____	Fire Prevention Bureau	_____	Law Enforcement	_____
Fire Command	_____	Public Works	_____	Risk Management	_____
EMS	_____	Trained Assessment Team	_____	Citizens	_____
Rescue	_____	State/Federal	_____	Other	_____

6. What areas does your damage assessment plan address?

Infrastructure (bridges, roads, dam etc.) _____	Structure _____
Utilities (gas, electrical, water) _____	Nonstructural _____
Special Hazards (industry, historic, hazardous material) _____	

7. Where was your damage assessment plan formulated?

Within Your Agency _____ Outside Your Agency _____

Appendix E

Kingsport Initial Damage Assessment Form and Instructions

Kingsport Fire Department Damage Assessment Form

Date _____ Time _____ Evaluator _____

Station: no damage _____ minimum damage _____ major damage _____ destroyed _____

Personnel: no injuries _____ minor injuries _____ major injuries _____ dead _____

Apparatus: no damage _____ minor damage (in-service) _____ major damage fixable _____ oos _____

Notes: _____

Streets / Bridges/Rail line

Location: _____

Intersection:_____ percent damage: _____

Passable _____ none passable _____Why:_____

Notes: _____

Structural

Type: Residential _____ Commercial _____ Public _____ Target Hazard _____ School _____ Airport _____

Hospital _____ Government _____ Industry _____ Parking Garage _____ Dam _____

Location: _____

No damage _____ minor damage% _____ major damage% _____ destroyed_____ water level _____feet

Notes: _____

Utilities

Type: Electric _____ Water _____ Gas _____ Sewer _____ Overhead _____ Underground _____

No damage _____ minor/operational % _____ major/fixable % _____ destroyed _____

Location: _____

Notes:_____

Nonstructural

Displacement _____ Erosion _____ Landslide _____ Collapsed soil _____ Sinkhole _____

Minor flooding _____ft Major flooding _____ ft Downed trees % _____ ground swell _____

Location: _____

Notes: _____

Comments

_____

_____

_____

Initial Damage Assessment Procedures and Notes

1. Safety of the emergency responders is the top priority during a large scale disaster.
2. The overall commanding officer and or Emergency Operations Center (EOC) will check on the well being of the emergency responder's family.
3. Initial assessment of emergency personnel, apparatus, equipment and station are to be preformed prior to affected areas outside the station.
4. A report of initial personnel and station assessment should be relayed to dispatch and commanding officer. List companies capabilities and or limitations.
5. Consider checking target hazards early in the damage assessment.
6. Perform a "windshield survey". If possible, a full damage assessment of a stations response zone needs to be performed prior to committing resources to a single location needing assistance or aid.
7. In the event that a disaster strikes. Single engine companies may have to function individually for a lengthy period of time. Do not get tied into a single location with minor damage, when life threatening events may need your assistance.
8. If an engine company comes upon a life threatening situation, aid should be provided immediately. Suspend damage assessment until situation is stabilized.
9. One Damage Assessment Form should be completed for each location.
10. Assessment of the damaged area should be reported periodically to command or Emergency Operations Center (EOC) if activated. If operational this can be performed by radio, cellular phone or Mobile Data Terminals (MDT).Forms will be utilized for damaged areas to help manage the disaster, resources, historic documentation and emergency response.
11. During initial damage assessment some of the damaged area may not be accessible. This should be noted for future investigation.
12. Engine companies will function as a single resource and will not break apart into individuals working on their own.
13. Company officers or team leaders will assure that accountability is maintained and receives a high priority.
14. Responders will be aware of the possibility of a secondary event with further damage striking affected areas.
15. Be aware of flooded zones, utility hazards, collapsed structures with collapse zones, hazardous debris and law enforcement with security issues.